

Claims

What is claimed is:

1. A fuel filter assembly comprising:
a filter assembly housing defining an inlet and an outlet;
a filter positioned in the filter assembly housing; and
a heater element positioned between the annular outer surface and
the filter.
2. The fuel filter assembly of claim 1 including an annular
outer surface with a cylindrical portion; and
the heater element being positioned adjacent the cylindrical
portion.
3. The fuel filter assembly of claim 2 including a water drain
valve attached to the filter assembly housing.
4. The fuel filter assembly of claim 3 wherein the heater
element is embedded in an inner wall of the filter assembly housing.
5. The fuel filter assembly of claim 3 wherein the heater
element is a portion of a thin film heater; and
the thin film heater being at least one of attached to an inner wall
of the filter assembly housing and embedded in the inner wall of the filter
assembly housing.
6. The fuel filter assembly of claim 1 wherein the heater
element is embedded in an inner wall of the filter assembly housing.
7. The fuel filter assembly of claim 1 wherein the heater
element is a portion of a thin film heater; and

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FOOTNOTES

the thin film heater is attached to an inner wall of the filter assembly housing.

8. The fuel filter assembly of claim 1 wherein the heater element is a portion of a thin film heater; and

the thin film heater is embedded in an inner wall of the filter assembly housing.

9. An engine comprising:

an engine housing; and

a fuel system attached to the engine housing and including a fuel filter assembly with a heater element positioned between a filter and an annular outer surface of a filter assembly housing.

10. The engine of claim 9 wherein the heater element being embedded in an inner wall of the filter assembly housing.

11. The engine of claim 9 wherein the annular outer surface includes a cylindrical portion; and

the heater element being positioned adjacent the cylindrical portion.

12. The engine of claim 11 wherein the fuel filter assembly includes a water drain valve attached to the filter assembly housing.

13. The engine of claim 12 wherein the heater element is embedded in an inner wall of the filter assembly housing.

14. The engine of claim 12 wherein the heater element is a portion of a thin film heater; and

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FIG. 10

the thin film heater being at least one of attached to an inner wall of the filter assembly housing and embedded in the inner wall of the filter assembly housing.

15. The engine of claim 9 wherein the heater element is a portion of a thin film heater; and

the thin film heater is attached to an inner wall of the filter assembly housing.

16. The engine of claim 9 wherein the heater element is a portion of a thin film heater; and

the thin film heater is embedded in an inner wall of the filter assembly housing.

17. A method of heating fuel comprising the steps of:
positioning a heater element in a fuel filter assembly between a filter and an annular outer surface of a filter assembly housing;
activating the heater element when fuel temperature is below a predetermined temperature.

18. The method of claim 17 wherein the step of positioning includes a step of embedding the heater element into the filter assembly housing.

19. The method of claim 17 wherein the step of positioning includes a step of positioning a thin film heater adjacent the filter.

20. The method of claim 19 wherein the step of positioning includes at least one of attaching the thin film heater to an inner wall of the fuel filter assembly and embedding the thin film heater into the filter assembly housing.